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[54] IMAGE HEATING DEVICE AND IMAGE FORMING DEVICE USING THE SAME

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[58] Field of Search 399/320, 328, 399/329, 330, 333, 335, 338

[56] References Cited

U.S. PATENT DOCUMENTS

4,256,945	3/1981	Carter et al. .
5,568,240	10/1996	Ohtsuka .

5,713,069	1/1998	Kato	399/330
5,752,148	5/1998	Yoneda et al.	399/329
5,765,086	6/1998	Kishino et al.	399/329
5,768,673	6/1998	Morigami	399/330
5,778,293	7/1998	Ohtsuka .	
5,822,669	10/1998	Okabayashi et al.	399/330
5,862,445	1/1999	Ogawa et al.	399/329
5,881,349	3/1999	Nanataki et al.	399/328
5,939,337	8/1999	Hatakeyama et al.	399/335 X
5,940,655	8/1999	Sano et al.	399/328 X

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[57] ABSTRACT

An image heating device comprises a cylindrical heating roller with a Curie temperature of 210° C., a magnetization coil for magnetizing the heating roller with an alternating magnetic field, which is arranged inside the heating roller, and a nip portion for heating a recording material that carries a toner image with heat from the heating roller, while the recording material is being conveyed along said nip portion. The ratio between the amount of heat generated in said heat-generating member at Curie temperature or higher to the amount of heat generated at room temperature in said heat-generating member is not more than ½. With this configuration, the heating roller can regulate its own temperature to stabilize at a temperature that is suitable for fixing, and the problems of partial overheating or underheating, unstable heat generation, or damage of the device can be eliminated.

34 Claims, 10 Drawing Sheets

